(12/03/1999)

# CURRICULUM VITAE

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| Name: | Richard David Kolodner |
| Address: | 13468 Kibbings Road, San Diego, CA 92130 |
| Date of Birth: | April 3, 1951 |
| Place of Birth: | Morristown, New Jersey |
| Education: | |
| 1971 B.S. | University of California, Irvine |
| 1975 Ph.D. | University of California, Irvine (Advisor: Dr. K.K. Tewari) |
| Academic Appointments: | |
| 1975-1978 | Research Fellow in Biological Chemistry, Harvard Medical School (Advisor: Dr. C.C. Richardson) |
| 1978-1983 | Assistant Professor of Biological Chemistry, Harvard Medical School and Dana-Farber Cancer Institute |
| 1978-1982 | Tutor in Biochemistry, Harvard University |
| 1981-1988 | Head, Laboratory of Molecular Genetics, Dana-Farber Cancer Institute |
| 1983-1987 | Associate Professor of Biological Chemistry, Harvard Medical School and Dana-Farber Cancer Institute |
| 1987-1988 | Associate Professor of Biological Chemistry and Molecular Pharmacology, Harvard Medical School and Dana-Farber Cancer Institute |
| 1988-1995 | Member, Division of Cellular and Molecular Biology, Dana-Farber Cancer Institute |
| 1988-1999 | Professor of Biological Chemistry and Molecular Pharmacology, Harvard Medical School and Dana-Farber Cancer Institute (On leave, 1997-1999) |
| 1990-1997 | Head, Laboratory of X-Ray Crystallography, Dana-Farber Cancer Institute |
| 1991-1994 | Chair, Division of Cellular and Molecular Biology, Dana-Farber Cancer Institute |
| 1995-1997 | Chair, Charles A. Dana Division of Human Cancer Genetics, Dana-Farber Cancer Institute |

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| 1996-1999 | Member, Department of Cancer Biology, Dana-Farber Cancer Institute (On leave, 1997-1999) |
| 1997- | Professor of Medicine, University of California San Diego Medical School (On leave, 1997-1999) |
| 1997- | Member, Biomedical Sciences Graduate Program, University of California San Diego Medical School |
| 1997- | Member, Ludwig Institute for Cancer Research, San Diego Branch. Head, Laboratory of Cancer Genetics |

Awards, Honors and Professional Recognition:

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|---|---|
| 1970 | Chancellor's Undergraduate Research Fellowship |
| 1971 | NSF Summer Fellowship |
| 1971 | Graduated with honors |
| 1971-1975 | NIH Predoctoral Traineeship |
| 1975-1976 | National Cystic Fibrosis Foundation Postdoctoral Fellowship |
| 1976-1978 | NIH Postdoctoral Fellowship |
| 1981-1983 | ACS Junior Faculty Research Award |
| 1984-1988 | ACS Faculty Research Award |
| 1988 | M.A. (Honorary), Harvard University |
| 1989 | Co-Chairman, 1989 FASEB Meeting on Genetic Recombination and Genome Rearrangements |
| 1991 | Chairman, 1991 FASEB Meeting on Genetic Recombination and Genome Rearrangements |
| 1992 | MERIT Award, NIH Grant GM26017 |
| 1994 | Special Scientific Achievement Award, Sandoz Pharmaceuticals Inc. |
| 1994 | Morse Research Award, Dana-Farber Cancer Institute |
| 1994 | Crawford Memorial Lecture, University of Iowa College of Medicine |
| 1994 | Cancer Center Distinguished Lecturer, Yale University School of Medicine |
| 1995 | Dean's Distinguished Lecturer, University of Colorado School of Medicine |
| 1996 | Charles S. Mott Prize, General Motors Cancer Research Foundation |
| 1996-1999 | Charles A. Dana Senior Investigator (endowed chair), Dana-Farber Cancer Institute (On leave, 1997-1999) |
| 1997 | Susan Swirling Memorial Lecture, Dana-Farber Cancer Institute |
| 1998 | Co-organizer, Genetics Society of America meeting on DNA Repair: bacteria to humans |

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| 1998 | Fellow, American Academy of Microbiology |
| 1998 | Elkin Distinguished Investigators Lectureship, Winship Cancer Center, Emory University |
| 1999 | Organizer, Symposium of DNA Repair, American Association for Cancer Research Annual Meeting |
| 1999-2000 | Organizer, American Association for Cancer Research Special Meeting on DNA Repair |

Major Committee Assignments:

National:

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| 1981 | Site Visit Team, Biological Energy Research Program, Department of Energy |
| 1981, 1984 | Ad Hoc Member, Biochemistry Study Section NIH |
| 1984, 1985 | Site visit team member, Biochemistry Study Section, NIH |
| 1986 | Ad Hoc Member, Physiological Chemistry Study Section, NIH |
| 1987-1991 | Member, Physiological Chemistry Study Section, NIH |
| 1987 | Special Study Section Member, Molecular Cytology Study Section, NIH |
| 1988 | Site visit team member, NIGMS Genetics Center Program |
| 1989 | Special Study Section Member, Genetics Study Section, NIH |
| 1989 | Special Review Committee Member for the NIH Human Genome Project |
| 1992 | Ad Hoc Member, Radiation Study Section, NIH |
| 1992 | Ad Hoc Member, Scientific Advisory Committee on Nucleic Acids and Protein Synthesis, American Cancer Society |
| 1995 | Ad Hoc Member, Molecular Biology Study Section, NIH |
| 1996 | Site visit team member, NCI intramural programs, NIH |
| 1997- | Advisory Committee, NIH consortium of Familial Colon Cancer Registries |
| 1998 | Site visit team member, NCI extramural programs, NIH |
| 1999 | Ad Hoc Member, NCI Scientific Review Group Subcommittee E, NIH |
| 1999 | Member, NCI Special Emphasis Review Group, NIH |

Medical School:

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| 1982-1987 | Committee on Postdoctoral Fellows, Harvard Medical School |
| 1986-1989 | Medical Curriculum Standing Committee, Harvard Medical School |
| 1988 | Committee on New Initiatives in Graduate Education, Harvard Medical School |
| 1989-1991 | Ad Hoc Committee to search for four Full Professors of Dermatology to serve at the Massachusetts General Hospital |
| 1990-1991 | Ad Hoc Committee to search for a Full Professor of X-Ray Crystallography to serve in the Department of Biological Chemistry and Molecular Pharmacology |
| 1990-1993 | Subcommittee of Professors, Harvard Medical School |
| 1993 | Ad Hoc Committee to search for a Full Professor of Genetics to serve in the Department of Medicine at the Brigham and Women's Hospital |
| 1993-1997 | Standing Committee on Faculty Misconduct, Harvard Medical School |
| 1994-1998 | Ad Hoc Committee to search for a Full Professor of Medicine to be a member of the Division of Human Cancer Genetics at the Dana-Farber Cancer Institute |
| 1995-1996 | Ad Hoc Committe to evaluate Dr. Haruo Saito for promotion to Full Professor of Biological Chemistry and Molecular Pharmacology at the Dana-Farber Cancer Institute |
| 1996-1997 | Ad Hoc Committee to search for a Full Professor of Medicine to serve as Chief of the Department of Medical Oncology at the Dana-Farber Cancer Institute |
| 1997-1998 | Research Task Force, Strategic Planning Committee, UCSD School of Medicine |
| 1998- | Head, UCSD Medical School Cancer Center Genetics Program. |
| 1999- | Member, MSTP Admissions Committee, UC San Diego School of Medicine |
| Departmental: | |
| 1979 | Department of Biological Chemistry, Junior Faculty Search Committee, Harvard Medical School (recruited Welcome Bender, Kevin Strul) |

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| 1987-1988 | Graduate Student Admission Committee, Departments of Biological Chemistry, Genetics, and Microbiology and Molecular Genetics |
| 1987 | Graduate Student Qualifying Examination Committee, Departments of Biological Chemistry, Genetics, and Microbiology and Molecular Genetics |
| 1987-1990 | Tridepartmental Graduate Program Executive Committee, Departments of Biological Chemistry and Molecular Pharmacology, Genetics, and Microbiology and Molecular Genetics |
| 1988-1997 | Executive Committee, Department of Biological Chemistry and Molecular Pharmacology |
| 1989-1993 | Department of Biological Chemistry and Molecular Pharmacology, Junior Faculty Search Committee, Harvard Medical School (recruited Elaine Elion, Andrew Lassar, Tom Ellenberger, Donald Morisoto, Steve Buratowski) |
| 1995-1996 | Department of Biological Chemistry and Molecular Pharmacology and Dana-Farber Cancer Institute, Junior Faculty Search Committee, Harvard Medical School (recruited Michael Eck) |

Hospital:

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| 1979 | Junior Faculty Search Committee, Dana-Farber Cancer Institute (recruited Jack Szostak, Lorraine Gudas) |
| 1979-1988 | Biohazard Committee, Dana-Farber Cancer Institute. Co-chairman, 1984. Chairman, 1985-1988 |
| 1980-1990 | Library Committee, Dana-Farber Cancer Institute |
| 1983-1984 | Safety Committee, Dana Farber Cancer Institute |
| 1984-1997 | Core Molecular Biology Facility, Chairman and Facility Director, Dana Farber Cancer Institute |
| 1989-1990 | Chair, Junior Faculty Search Committee (for X-Ray Crystallography), Dana-Farber CancerInstitute (recruited Robert Liddington, Christin Frederick) |
| 1989-1993 | Center for AIDS Research Core Grant Executive Committee, Dana-Farber Cancer Institute |
| 1989-1993 | Chair, Center for AIDS Research Core Grant Small Grant Review Committee, Dana-Farber Cancer Institute |
| 1990-1993 | Scientific Computing Committee. Dana-Farber Cancer Institute |

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|---|---|
| 1992-1993 | Chair, Junior Faculty Search Committee, Division of Cellular and Molecular Biology, Dana-Farber Cancer Institute (recruited Pam Silver) |
| 1992-1994 | Chair, Basic Sciences Executive Committee, Dana-Farber Cancer Institute |
| 1993-1996 | Member, Scientific Council, Dana-Farber Cancer Institute |
| 1996-1997 | Member, Executive Committee for Research, Dana-Farber Cancer Institute |
| 1996-1997 | Chair, Faculty Research Council, Dana-Farber Cancer Institute |

Other:

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| 1995 | Advisory Committee, Biochemistry Graduate Program, Tufts University Medical School |
| 1997 | Charles S. Mott Prize Selection Committee, General Motors Cancer Research Foundation |
| 1998-1999 | AACR-Pezcoller Prize Selection Committee |
| 1999- | External Advisory Committee, NCI Program Project CA82267, Louise Strong, Principal Investigator |
| 1999- | External Advisory Board, Brazilian Genome Project |
| 1999- | External Advisory Board, University of Texas MD Anderson Cancer Center |
| 1999 | Program Committee, Sub-Committee Chair, American Association for Cancer Research Year 2000 Annual Meeting |

Editorial Services:

Editorial Boards:

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| 1986-1995 | Co-Editor in Chief (with Dr. F. Macrina), PLASMID |
| 1995- | Associate Editor, Cancer Research |
| 1996- | Associate Editor, Cell |
| 1999- | Editorial Board, Molecular and Cellular Biology |
| 2000- | Editorial Board, Journal of Biological Chemistry |

Ad Hoc Reviews:

American J. Human Genetics
Biochem. Biophys. Acta
Biochemistry
Biotechniques
Blood
British J. Cancer
Cancer Research
Carcinogenesis

Cell
Current Biology
EMBO Journal
Gasteroenterology
Gene
Genetics
Genes and Development
Genomics
J. Bacteriol.
J. Biol. Chem.
J. Clinical Investigation
J. Mol. Biol.
J. National Cancer Institute
Molecular Cell
Mol. Cell. Biol.
Mol. Gen. Genet.
Molecular Microbiology
Mutation Research
Nature
Nature Genetics
Nature Medicine
Nucleic Acids Research
Oncogene
Proc. Natl. Acad. Sci. USA
Science
Trends in Genetics

Memberships, Offices, and Committee Assignments in Professional Societies:

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| 1979- | American Society for Microbiology |
| 1984- | American Society of Biochemistry and Molecular Biology |
| 1984- | Genetics Society of America |
| 1991-1994 | Protein Society |
| 1996- | American Association for Cancer Research |

Major Research Interests:

1. The enzymatic mechanism(s) of genetic recombination and repair in prokaryotes and eukaryotes.

2. Genetics of cancer susceptibility.

Teaching Experience:

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| 1978 | Lectures on DNA structure for graduate and medical students, Harvard Medical School (Biochemistry 700B) |
| 1979-1983 | Thesis supervisor (Graduate), Department of Biological Chemistry, Harvard Medical School; Jackiel Joseph received his Ph.D. in 1983 |
| 1979-1982 | Lectures on molecular biology of eukaryotes for graduate students, Harvard Medical School (Biochemistry 208) |
| 1981-1988 | Lectures on genetic recombination for graduate and medical students, Harvard Medical School (Cell Biology 211) |
| 1982 | Lectures on DNA replication, genetic recombination and nucleic acid metabolism for graduate students, Harvard Medical School (Biochemistry 200A) |
| 1984-1987 | Lectures on Protein Structure for graduate students, Harvard Medical School (Biochemistry 201) |
| 1984-1988 | Thesis supervisor (Graduate), Department of Cellular and Developmental Biology, Harvard University; Douglas Bishop received his Ph.D. in 1988 |
| 1987-1993 | Thesis supervisor (Graduate), Department of Biological Chemistry and Molecular Pharmacology, Harvard Medical School; Daniel Tishkoff received his Ph.D. in 1993 |
| 1987-1991 | Thesis supervisor (Graduate), Department of Biological Chemistry and Molecular Pharmacology, Harvard Medical School; Robert Reenan received his Ph.D. in 1991 |
| 1989-1993 | Thesis supervisor (Graduate), Department of Biological Chemistry and Molecular Pharmacology, Harvard Medical School; Sharynn Hall received her Ph.D. in 1993 |
| 1989-1994 | Thesis supervisor (Graduate), Department of Biological Chemistry and Molecular Pharmacology, Harvard Medical School, Nai-Wen Chi received his Ph.D. in 1994. |
| 1989 | Division of Medical Sciences, Harvard Medical School, Graduate Student Education Workshop Committee |
| 1990-1995 | Course Director (With Dr. Charles C. Richardson), DNA Structure and Metabolism, Harvard Medical School (BCMP 209) |
| 1993-1997 | Thesis supervisor (Graduate), Department of Biological Chemistry and Molecular Pharmacology, Harvard Medical School; James V. Needham |

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| 1995 | Lectures on DNA repair and cancer susceptibility syndromes for graduate students, Harvard Medical School (Cell Biology 211A) |
| 1995 | Lectures on DNA repair and cancer susceptibility syndromes for undergraduate students, Harvard University (Biological Sciences 10) |
| 1995-1997 | Thesis supervisor (Graduate), Department of Biological Chemistry and Molecular Pharmacology, Harvard Medical School; Adrienne Beddow |
| 1995-1999 | Thesis supervisor (MD, PhD), Department of Biological Chemistry and Molecular Pharmacology, Harvard Medical School; Clark Chen received Ph.D. in 1999 |
| 1998- | Thesis Supervisor (Graduate), Biomedical Sciences Graduate Program, UC San Diego School of Medicine; Patrick Lau |
| 1998- | Lectures on DNA Repair in Molecular Biology, UCSD School of Medicine (BMS 211) |

## BIBLIOGRAPHY

Publications:


1. Kolodner, R, and Tewari, KK. Physiochemical characterization of mitochondrial DNA from pea leaves. Proc. Natl. Acad. Sci. USA. 1972;69:1830-1834.

2. Kolodner, R, and Tewari, KK. Molecular size and conformation of chloroplast deoxyribonucleic acid from pea leaves. J. Biol. Chem. 1972;247:6355-6363.

3. Kolodner, R, and Tewari, KK. Genome sizes of chloroplast and mitochondrial DNA's from higher plants. In Arceneaux C.J., ed. 30th Annual Proc. Electron Microscopy Soc. Amer. 1972;60-61.

4. Porter, BW, Kolodner, R, and Warner, RC. Plasmids of *Shigella dysenteria*: A defective Col factor. J. Bacteriol. 1973;116:163-174.

5. Wagner, EI, Tewari, KK, Kolodner, R, and Warner, RC. The molecular size of the Herpes simplex type 1 virus genome. Virology. 1974;57:436-445.

6. Kolodner, R, and Tewari, KK. Denaturation mapping studies on the circular chloroplast deoxyribonucleic acid from pea leaves. J. Biol. Chem. 1975;250:4888-4895.

7. Kolodner, R, Warner, RC, and Tewari, KK. The presence of covalently linked ribonucleotides in the closed circular chloroplast deoxyribonucleic acid from higher plants. J. Biol. Chem. 1975;250:7020-7026.

8. Kolodner, R, and Tewari, KK. The chloroplast DNA from higher plants replicates by both the Cairns and the rolling circle mechanism. Nature. 1975;256:708-712.

9. Kolodner, R, and Tewari, KK. The molecular size and conformation of the chloroplast DNA from higher plants. Biochem. Biophys. Acta. 1975;402:372-390.

10. Kolodner, R, and Tewari, KK. The presence of displacement loops in the circular chloroplast deoxyribonucleic acid from higher plants. J. Biol. Chem. 1975;250:8840-8847.

11. Thomas, JR, Kolodner, R, and Tewari, KK. Molecular size and the information content of the chloroplast DNA's from higher plants. In Nasyrov, Y, and Sesdak, Z, eds. Genetic aspects of photosynthesis. Netherlands: W. Junk, 1975:447:9-30.

12. Kolodner, R, Tewari, KK and Warner, RC. Physical studies on the size and conformation of the chloroplast DNA from higher plants. Biochem. Biophys. Acta. 1976;447:144-155.

13. Kolodner, R. The size, structure and replication of the chloroplast DNA from higher plants. Ph.D. thesis, University of California, Irvine. 1975.

14. Tewari, KK, Kolodner, R, Chu, NM, and Meeker, R. The structure of chloroplast DNA. In Bogorad, L, and Weil, J, eds. Proceedings of the NATO Advanced Study Institute on nucleic acids and protein synthesis in higher plants. London: Plenum Publishing Co. Ltd. 1976:15-36.

15. Tewari, KK, Kolodner, R, and Dobkin, W. Replication of circular chloroplast DNA. In Bucher, T, ed. Genetics and development of chloroplasts and mitochondria. Amsterdam: Elsevier Scientific. 1976;379-386.

16. Kolodner, R, and Richardson, CC. Replication of duplex DNA by bacteriophage T7 DNA polymerase and gene 4 protein is accompanied by hydrolysis of nucleoside 5'-triphosphates. Proc. Natl. Acad. Sci. USA. 1977;74:1525-1529.

17. Bedbrook, JR, Kolodner, R, and Bogorad, L. *Zea mays* chloroplast ribosomal RNA genes are part of a 22,000 base pair inverted repeat. Cell. 1977;11:739-750.

18. Bogorad, L, Bedbrook, JR, Davidson, JN, Hanson, MR, and Kolodner, R. Genes for plastid ribosomal proteins and rRNA's. Brookhaven Symp. in Biology. 1977;29:1-15.

19. Kolodner, R, Masamune, Y, LeClerc, JE, and Richardson, CC. Bacteriophage T7 deoxribonucleic acid replication *in vitro*. IX. Gene 4 protein of bacteriophage T7: purification, physical properties, and stimulation of T7 DNA polymerase during the elongation of polynucleotide chains. J. Biol. Chem. 1978;253:566-573.

20. Kolodner, R, and Richardson, CC. Bacteriophage T7 deoxribonucleic acid replication *in vitro*. X. Gene 5 protein of bacteriophage T7: characterization of the product synthesized by the T7 DNA polymerase and gene 4 protein in the absence of ribonucleoside 5'-triphosphates. J. Biol. Chem. 1978;253:574-584.

21. Bogorad, L, Bedbrook, JR, Coen, DM, Kolodner, R, and Link, G. Genes for chloroplast proteins and rRNA's. In Akyonoglou, G, and Argyroudi-Akyonoglou, JH, eds. Chloroplast Development, Amsterdam, Elsevier/North Holland Biomedical Press, 1978, 541-551.

22. Kolodner, R, and Tewari, KK. Inverted repeats in the chloroplast DNA from higher plants. Proc. Natl. Acad. Sci. USA. 1979;76:41-45.

23. Richardson, CC, Romano, LJ, Kolodner, R, LeClerc, JE, Tamanoi, F, Engler, MJ, Dean, FB, and Richardson, D. Replication of bacteriophage T7 DNA by purified proteins. Cold Spring Harbor Symp. Quant. Biol. 1979;43:427-439.

24. Bedbrook, JR and Kolodner, R. The structure of chloroplast DNA. Ann. Rev. Plant. Physiol. 1979;30:593-620.

25. Efstratiadis, A, Lomedico, PT, Rosenthal, N, Kolodner, R, Tizard, R, Perler, F, Villa-Kamaroff, L, Naber, S, Chick, W, Broome, S, and Gilbert, W. The structure and transcription of rat preproinsulin in genes. In Maniatis, R Axel,R, and Fox, CF, eds. Eucaryotic gene regulation, Volume XIV. New York: Academic Press. 1979;301-315.

26. Lomedico, PT, Rosenthal, N, Kolodner, R, Efstratiadis, A, and Gilbert, W. The structure of rat preproinsulin in genes. Ann. New York Acad. Sci. 1979;343:425-432.

27. Lomedico, PT, Rosenthal, N, Efstratiadis, A, Gilbert, W, Kolodner, R, and Tizard, R. The structure and evolution of the two non-allelic rat preproinsulin genes. Cell. 1979;18:545-558.

28. Orkin, S, Kolodner, R, Michelson, A, and Husson, R. Direct examination of a structurally abnormal β-thalassemia gene. Proc. Natl. Acad. Sci. USA. 1980;77:3558-3662.

29. Perler, F, Efstratiadis, A, Lomedico, P, Gilbert, W, Kolodner, R, and Dodgson, J. Evolution of genes: the chicken preproinsulin genes. Cell. 1980;20:555-566.

30. Kolodner, R. Genetic recombination of bacterial plasmid DNA: Electron microscopic analysis of intramolecular recombination catalyzed *in vitro*. Proc. Natl. Acad. Sci. USA. 1980;77:4847-4851.

31. Kolodner, R, Joseph, J, James, A, Dean, F, and Doherty, MJ. Genetic recombination of plasmid DNA *in vivo* and *in vitro* in mechanistic studies of replication and genetic recombination. In Alberts, B, and Fox, CF, eds. ICN--UCLA Symposia on Molecular and Cellular Biology, Volume XIX. New York: Academic Press. 1980;294:933-939.

32. Fishel, RA, James, AA, and Kolodner, R. RecA-independent general genetic recombination of plasmids. Nature. 1981;294:184-186.

33. James, AA, Morrison, PT, and Kolodner, R. Genetic recombination of bacterial plasmid DNA: analysis of the effect of recombination-deficient mutations on plasmid recombination. J. Mol. Biol. 1982;160:411-430.

34. Doherty, MJ, Morrison, PT, and Kolodner, R. Genetic recombination of bacterial plasmid DNA: physical and genetic analysis of the products of plasmid recombination. J. Mol. Biol. 1983;167:539-560.

35. Joseph, JW, and Kolodner, R. Exonuclease VIII of *Escherichia coli*. I. Purification and properties J. Biol. Chem. 1983;258:10411-10417.

36. Joseph, JW, and Kolodner, R. Exonuclease VIII of *Escherichia coli*. II. Mechanism of action. J. Biol. Chem. 1983;258:10418-10424.

37. James, AA, Morrison, PT, and Kolodner, R. Isolation of genetic elements that increase frequencies of plasmid recombinants. Nature. 1983;303:256-259.

38. James, AA, and Kolodner, R. Genetic recombination of Plasmids in *Escherichia coli*, in Cozzarelli, NR, ed. UCLA Symposia on Molecular and Cellular Biology, Volume 10. New York: Alan R. Liss, Inc. 1983;761-722.

39. Fishel, RA, and Kolodner, R. Gene conversion in *Escherichia coli*: the identification of two repair pathways for mismatched nucleotides, in Friedberg, EC, and Bridges, BA, eds. UCLA Symposia on Molecular and Cellular Biology, Volume 11. New York: Alan R. Liss, Inc., 1983;309-324.

40. Symington, LS, Fogarty, L, and Kolodner, R. Genetic recombination of homologous plasmids catalyzed by cell-free extracts of yeast. Cell. 1983;35:805-813.

41. Howell, N, Huang, R, and Kolodner, R. Transmission and segregation of mitochondrial DNA dimers in mouse hybrid and cybrid cell lines. Somatic Cell Genetics. 1984;10:259-274.

42. Fishel, RA, and Kolodner, R. *Escherichia coli* strains containing mutations in the structural gene for Topoisomerase I are recombination deficient. J. Bacteriol. 1984;160:1168-1170.

43. Fishel, RA, and Kolodner, R. An *Escherichia coli* cell-free system that catalyzes the repair of symmetrically methylated heteroduplex DNA. Cold Spring Harbor Symp. Quant. Biol. 1984;49:603-610.

44. Symington, LS, Morrison, PT, and Kolodner, R. Genetic recombination catalyzed by cell-free extracts of *Saccharomyces cerevisiae*. Cold Spring Harbor Symp. Quant. Biol. 1984;49:805-814.

45. Kolodner, R, Fishel, RA,and Howard, M. Genetic recombination of bacterial plasmid DNA: effect of RecF pathway mutations on plasmid recombination in *Escherichia coli*. J. Bacteriol. 1985;163:1060-1066.

46. Symington, LS, Morrison, PT, and Kolodner, R. Plasmid recombination intermediates generated in a *Saccharomyces cerevisiae* cell-free recombination system. Mol. Cell. Biol. 1985;5:2361-2368.

47. Symington, LS, and Kolodner, R. Partial purification of an enzyme from *Saccharomyces cerevisiae* that cleaves Holliday junctions. Proc. Natl. Acad. Sci. USA. 1985;82:7247-7251.

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51. Muster-Nassal, C, and Kolodner, R. Mismatch correction catalyzed by cell-free extracts of *Saccharomyces cerevisiae*. Proc. Natl. Acad. Sci. USA. 1986;83:7618-7622.

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53. Kolodner, R, Evans, D, Symington, LS, and Muster-Nassal, C. Enzymatic systems from *Saccharomyces cerevisiae* that catalyze the processing of Holliday junctions

and the repair of mismatched nucleotides. Curr. Comm. in Molecular Biology, Mechanisms of Yeast Recombination. Klar, A, and Strathern, JS, eds. Cold Spring Harbor Laboratory Press, 1986;165-171.

54. Kolodner, R, Bishop, DK, Evans, D, Muster-Nassal, C, and Symington, LS. Processing of Holliday junctions and the repair of mismatched nucleotides catalyzed by enzymatic systems of *Saccharomyces cerevisiae*. In Kelly, T, and McMacken, R, eds. UCLA Symposia on Molecular and Cellular Biology, New Series Volume 47. New York: Alan R. Liss, Inc., 1986;637-646.

55. Evans, DH, and Kolodner, R. Construction of an oligonucleotide Holliday junction analog and characterization of its interaction with a *Saccharomyces cerevisiae* endonuclease that cleaves Holliday junctions. J. Biol. Chem. 1987;262:9160-9165.

56. Bishop, D, Williamson, MS, Fogel, S, and Kolodner, R. The role of heteroduplex correction in gene conversion in *Saccharomyces cerevisiae*. Nature. 1987;328:362-364.

57. Kolodner, R, Evans, DH, and Morrison, PT. Purification and characterization of an activity from *Saccharomyces cerevisiae* that catalyzes homologous pairing and strand exchange. Proc. Natl. Acad. Sci. USA. 1987;84:5560-5564.

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59. Evans, DH, and Kolodner, R. Effect of DNA structure and nucleotide sequence on Holliday junction resolution resolution by a *Saccharomyces cerevisiae* endonuclease. J. Mol. Biol. 1988;201:69-80.

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62. Luisi-DeLuca, CA, Clark, AJ, and Kolodner, R. Analysis of the *recE* locus of *Escherichia coli*. K-12 using polyclonal antibodies to exonuclease VIII. J. Bacteriol. 1988;170:5797-5805.

63. Fishel, RA, and Kolodner, R. Gene conversion in *Escherichia coli*: the RecF– pathway for the resolution of heteroduplex DNA. J. Bacteriol. 1989;171:3046-3052.

64. Luisi-DeLuca, CA, Lovett, ST, and Kolodner, R. Genetic and physical analysis of plasmid recombination in *recB recC sbcB* and *recB recC sbcA Escherichia coli* K12 mutants. Genetics. 1989;122:269-278.

65. Heyer, W-D, and Kolodner, R. Purification and characterization of a protein from *Saccharomyces cerevisiae* that binds tightly to single-stranded DNA and stimulates a cognate strand exchange protein. Biochemistry. 1989;28:2856-2862.

66. Bishop, DK, Anderson, J, and Kolodner, R. Specificity of mismatch repair following transformation of *Saccharomyces cerevisiae* with heteroduplex plasmid DNA. Proc. Natl. Acad. Sci. USA. 1989;86:3713-3717.

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68. Morrison, PT, Lovett, ST, Gilson, L, and Kolodner, R. Molecular analysis of the *Escherichia coli recO* gene. J. Bacteriol. 1989;171:3641-3649.

69. Johnson, RS, Sheng, M, Greenberg, ME, Kolodner, RD, Papaioannou, VE, and Spiegelman, BM. Targeting of non-expressed genes in embryonic stem cells via homologous recombination. Science. 1989;245:1234-1236.

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71. Norris, DN, and Kolodner, R. Purification of a strand exchange stimulatory factor from *Saccharomyces cerevisiae*. Biochemistry. 1990;29:7903-7911.

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Cooperative group efforts:

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Patents and patent applications:

1. A Method for Detection of Alterations in the DNA Mismatch Repair Pathway (Austrailian Patent Ser. No. 702022; issued effective 17/11/94). Kolodner, RD, Fishel, R, and Reenan, RAG.

2. Detection of Mismatches by Cleavage of Nucleic Acid Duplexes (US Patent Ser. No. 5,824,471; issued 20/10/98). Mashal, R, Sklar, J, and Kolodner, RD.

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4. Mismatch Repair Genes, Gene Products, and Uses Thereof (US Provisional Patent Application Ser. No. 08/465,251). Kolodner, RD, Fishel, RA, and Reenan, R.

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